EXHIBIT 4

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/010,382	01/20/2011	Kevin J. Humphries	AL808077	2586

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EXAMINER	
PARK, JUNG H	

ART UNIT	PAPER NUMBER
2411	

NOTIFICATION DATE	DELIVERY MODE
10/23/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Application No.	Applicant(s)
13/010,382	HUMPHRIES, KEVIN J.
Examiner	**Art Unit**
JUNG PARK	2411

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-21* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-5, 12, 17, 18 and 21* is/are rejected.

8)☒ Claim(s) *6-11, 13-16, 19 and 20* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *20 January 2011* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/20/11, 05/23/12*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 12, 17, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salam et al. (US 2010/0020680, "Salam") in view of Weyman et al. (US 2005/0041665, "Weyman").

Regarding claim 1, Salam discloses an aggregation switch in a multi-chassis system for performing Internet Protocol (IP) multicast snooping, comprising:

- a plurality of virtual fabric link (VFL) ports coupled to a VFL (DHDs are connected to the same PE device via ports, see fig.1, ¶.2-3, and ¶.18), wherein the VFL is connected to a remote aggregation switch, wherein the remote aggregation switch is active and in a separate physical chassis (PE1 and PE2 nodes are referred to as aggregation switches, see 120 fig.1 and ¶.22; active aggregation switch, see ¶.15);

- a plurality of external ports coupled to at least one edge node (ports connected to DSLAM as an edge node, see ¶.2) and at least one network node (a customer connected CE device, see ¶.2).

Salam does not explicitly disclose what Weyman discloses,

- a database maintaining IP multicast snooping information (IGMP snooping functionality that controls the bridge's forwarding of IP multicast address traffic, see

¶.104; forwarding database allowing learning opportunity presented by the additional synchronization, i.e. snooping, see ¶.47 and ¶.6); and

- a chassis management module (a snooper module, not shown, see ¶.104) for receiving the snooping information via at least the external ports (receiving snooping information to determine which user ports connect to a client of a particular multicast stream, see ¶.104), storing the snooping information within the database (forwarding database allowing learning opportunity presented by the additional synchronization by snooping action, see ¶.47 and ¶.6) and sharing the snooping information substantially in real-time with the remote aggregation switch via the VFL (a master unit in the fabric to run routing protocols and for the other units to synchronize their operation by the action of 'snooping', see ¶.6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to apply the database maintaining IP multicast snooping information and a snooper module as a chassis management module as taught by Weyman into the system of Salam, so that it provides a way of determining which user ports connect to a client of a particular multicast stream (Weyman, see ¶.104).

Regarding claim 2, Salam discloses “the chassis management module shares information with an additional chassis management module on the remote aggregation switch via a logical inter-process communication (IPC) channel over the VFL (ICC, see fig.1)”, but does not disclose what Weyman discloses “snooping information (snooping, see ¶.47).“ Therefore, this claim is rejected with the similar reasons and motivation set forth in the rejection of claim 1.

Regarding claim 3, Salam does not explicitly disclose what Weyman discloses "the snooping information includes at least one of group membership information identifying groups for receiving multicast traffic flows, queries for multicast traffic flows, identifiers of multicast traffic flows and identifiers of neighboring multicast routers (flow of multicast traffic, see ¶.97)." Therefore, this claim is rejected with the similar reasons and motivation set forth in the rejection of claim 1.

Regarding claim 4, Salam discloses "one or more of the external ports are member ports of a multi-chassis link aggregation group (MC-LAG) connected to an edge node; and the remote aggregation switch includes one or more of the member ports of the MC-LAG (multi-chassis LAG, see 120 fig.1)."

Regarding claim 5, Salam discloses "the chassis management module further receives a portion of the information from the remote aggregation switch via the VFL, the portion of the information having remote hardware device information associated therewith, the remote hardware device information including a remote external port identifier of a remote external port that received the information on the remote aggregation switch (determining switch egress ports and queuing the packet for transmission, see ¶.7; determining the port as P 15/2, see ¶.74)", but does not explicitly disclose what Weyman discloses "snooping information (snooping, see ¶.47)." Therefore, this claim is rejected with the similar reasons and motivation set forth in the rejection of claim 1.

Regarding claim 12, Salam does not explicitly disclose what Weyman discloses "the chassis management module further builds respective forwarding vectors for multicast traffic flows received from the network nodes via the external ports or the VLF ports based on the snooping information (forwarding vector in routing protocol, see ¶.81)." Therefore, this claim is rejected with the similar reasons and motivation set forth in the rejection of claim 1

Regarding claim 17, it is a claim corresponding to claim 1 and is therefore rejected for the similar reasons set forth in the rejection of the claim.

Regarding claim 18, it is a claim corresponding to claim 5 and is therefore rejected for the similar reasons set forth in the rejection of the claim.

Regarding claim 21, Salam discloses "the aggregation switch is a secondary switch and the remote aggregation switch is a primary switch, and further comprising: configuring a virtual IP interface associated with a virtual IP virtual local area network (VIP VLAN) coupling the primary switch and the secondary switch to a MC-LAG as a stub network to prevent the virtual IP interface from sending and processing received Layer 3 routing control packets on the external ports (virtual private LAN, see ¶.41; layer 3 IP routing, see ¶.21)."

Allowable Subject Matter

3. Claims 6-11 and 13-16, 19, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. ***Examiner's Note:*** Examiner has cited particular columns and line numbers, or paragraphs in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung Park whose telephone number is 571-272-8565. The examiner can normally be reached on Mon-Fri during 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Lai can be reached on 571-272-9741. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jung Park/

Primary Examiner, Art Unit 2411